

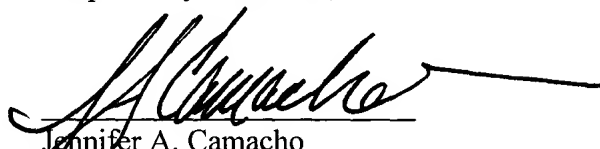
Conclusion

Applicants respectfully submit that the application is now in condition for allowance. If the Examiner believes that a conversation with Applicants' attorney would be helpful in expediting prosecution of this application, the Examiner is invited to call the undersigned at the telephone number below.

Date: 4/1/03

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Respectfully submitted,


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MIT-103

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CLAIM AMENDMENTS IN MARK-UP FORMAT

45. (Fourth Amendment) An isolated nucleic acid comprising a recombinant expression vector including a nucleotide sequence selected from the group consisting of SEQ ID NO: 17, and a sequence complementary to SEQ ID NO: 17; said nucleotide sequence being operably joined to a regulatory region, as in claim 41 wherein said expression vector encodes at least a functional domain of an hcAMP-GEFII protein having the amino acid sequence of SEQ ID NO: 18, wherein said functional domain of the hcAMP-GEFII protein exhibits guanine nucleotide exchange factor activity in an *in vitro* assay.

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CLEAN COPY OF CLAIMS

1. (Canceled)
2. (Canceled)
3. (Canceled)
4. (Canceled)
5. (Canceled)
6. (Canceled)
7. (Canceled)
8. (Canceled)
9. (Canceled)
10. (Canceled)
11. (Canceled)
38. (Canceled)
39. (Canceled)
40. An isolated nucleic acid comprising a recombinant vector including a nucleotide sequence selected from the group consisting of SEQ ID NO: 17, and a sequence complementary to SEQ ID NO: 17.

41. An isolated nucleic acid as in claim 40 wherein said vector is an expression vector and said nucleotide sequence is operably joined to a regulatory region.
42. An isolated nucleic acid as in claim 41 wherein said expression vector may express said nucleotide sequence in mammalian cells in culture.
43. An isolated nucleic acid as in claim 42 wherein said cells in culture are selected from the group consisting of fibroblast, liver, kidney, spleen, bone marrow, and neurological cells.
44. An isolated nucleic acid as in claim 42 wherein said vector is selected from the group consisting of vaccinia virus, adenovirus, retrovirus, neurotropic viruses, and Herpes simplex.
45. (Fourth Amendment) An isolated nucleic acid comprising a recombinant expression vector including a nucleotide sequence selected from the group consisting of SEQ ID NO: 17, and a sequence complementary to SEQ ID NO: 17; said nucleotide sequence being operably joined to a regulatory region, wherein said expression vector encodes at least a functional domain of an hcAMP-GEFII protein having the amino acid sequence of SEQ ID NO: 18, wherein said functional domain of the hcAMP-GEFII protein exhibits guanine nucleotide exchange factor activity in an *in vitro* assay.
46. An isolated nucleic acid as in claim 41 wherein said vector further comprises sequences encoding an exogenous protein operably joined to said nucleotide sequence and whereby said vector encodes a fusion protein.
47. An isolated nucleic acid as in claim 46 wherein said exogenous protein is selected from the group consisting of lacZ, trpE, maltose-binding protein, poly-His tags, and glutathione-S-transferase.
48. (Canceled)
49. (Canceled)

50. A host cell in culture, said host cell comprising an expression vector of any one of claims 41-47, or a descendant thereof, wherein said host cell is transformed *in vitro* with said expression vector.

51. A host cell in culture as in claim 50 wherein said host cell is selected from the group consisting of bacterial cells and yeast cells.

52. A host cell in culture as in claim 50 wherein said host cell is selected from the group consisting of fetal cells, embryonic stem cells, zygotes, gametes, and germ line cells.

53. A host cell in culture as in claim 50 wherein said cell is selected from the group consisting of fibroblast, liver, kidney, spleen, bone marrow and neurological cells.

54. A host cell in culture as in claim 50 wherein said cell is an invertebrate cell.

62. A method for producing at least a functional domain of an hcAMP-GEFII protein (SEQ ID NO: 18), said method comprising culturing a host cell of any of claims 50-54 under suitable conditions to produce said protein by expressing said nucleic acid, wherein said functional domain exhibits guanine nucleotide exchange factor activity in an *in vitro* assay.

118. (Canceled)

119. (Canceled)

120. (Canceled)